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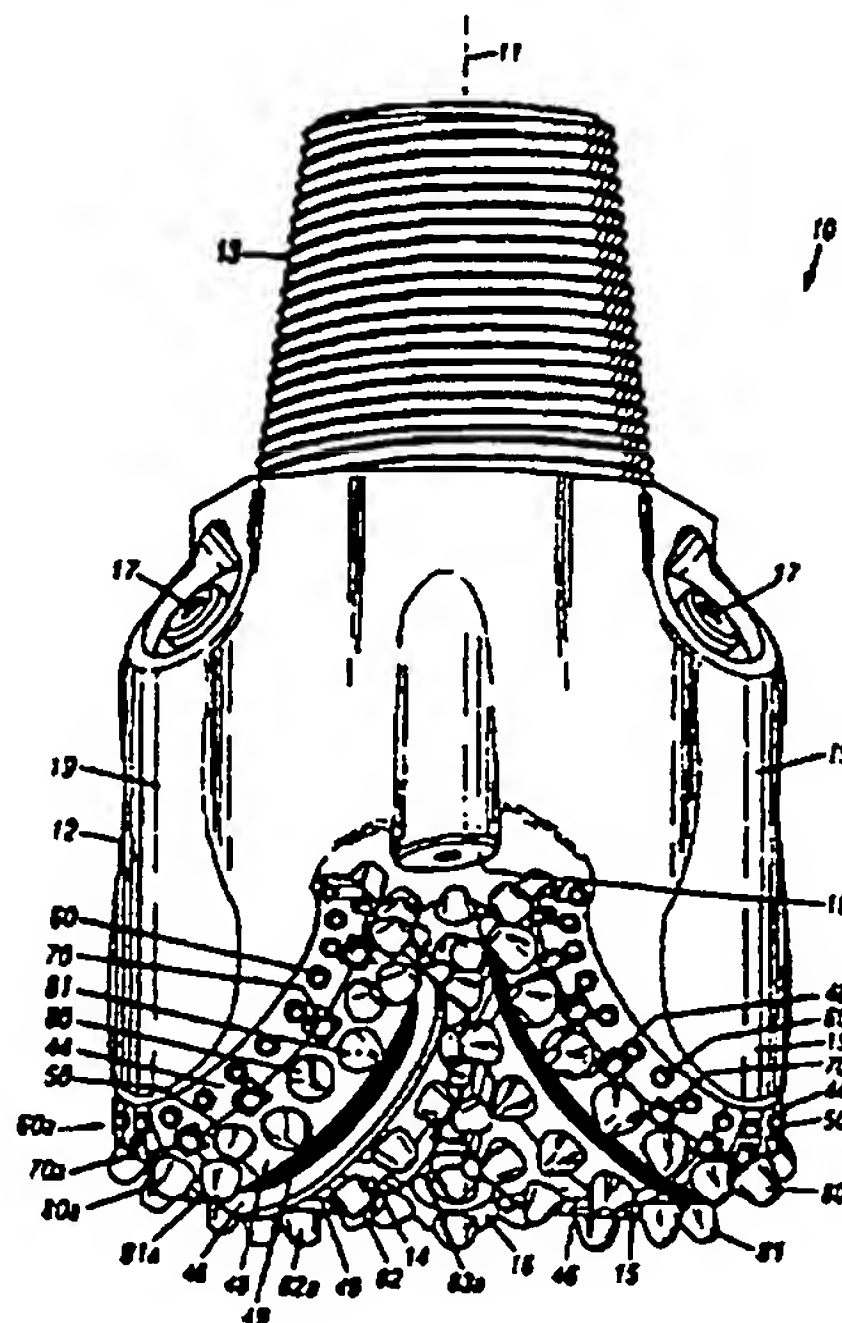
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(54) Abstract Title

Rolling cone bit having gage and nested gage cutter elements having enhancements in materials and geometry to optimize borehole corner cutting duty

(57) A rolling cone bit (10) having a gage row (80) and an adjacent nested gage row (70) of cutter elements that are positioned on gage so as to divide or share the borehole corner cutting duty. The wear resistance, hardness, toughness and shape of the cutter elements in the adjacent rows (60, 70, 80) are optimized depending upon the type of cutting the respective rows perform, the characteristics of the formation being drilled and the drilling techniques being employed. In most applications, the nested gage cutter elements (70) will have cutting surfaces that are more wear resistant or harder than the cutting surfaces of the gage cutter elements (80) which experience more bottom hole duty. The nested gage cutter elements (70) engage the borehole wall with a negative rake angle for increased durability. Preferably, the nested gage cutter elements (70) have continuously contoured and non-shearing cutting surfaces.



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